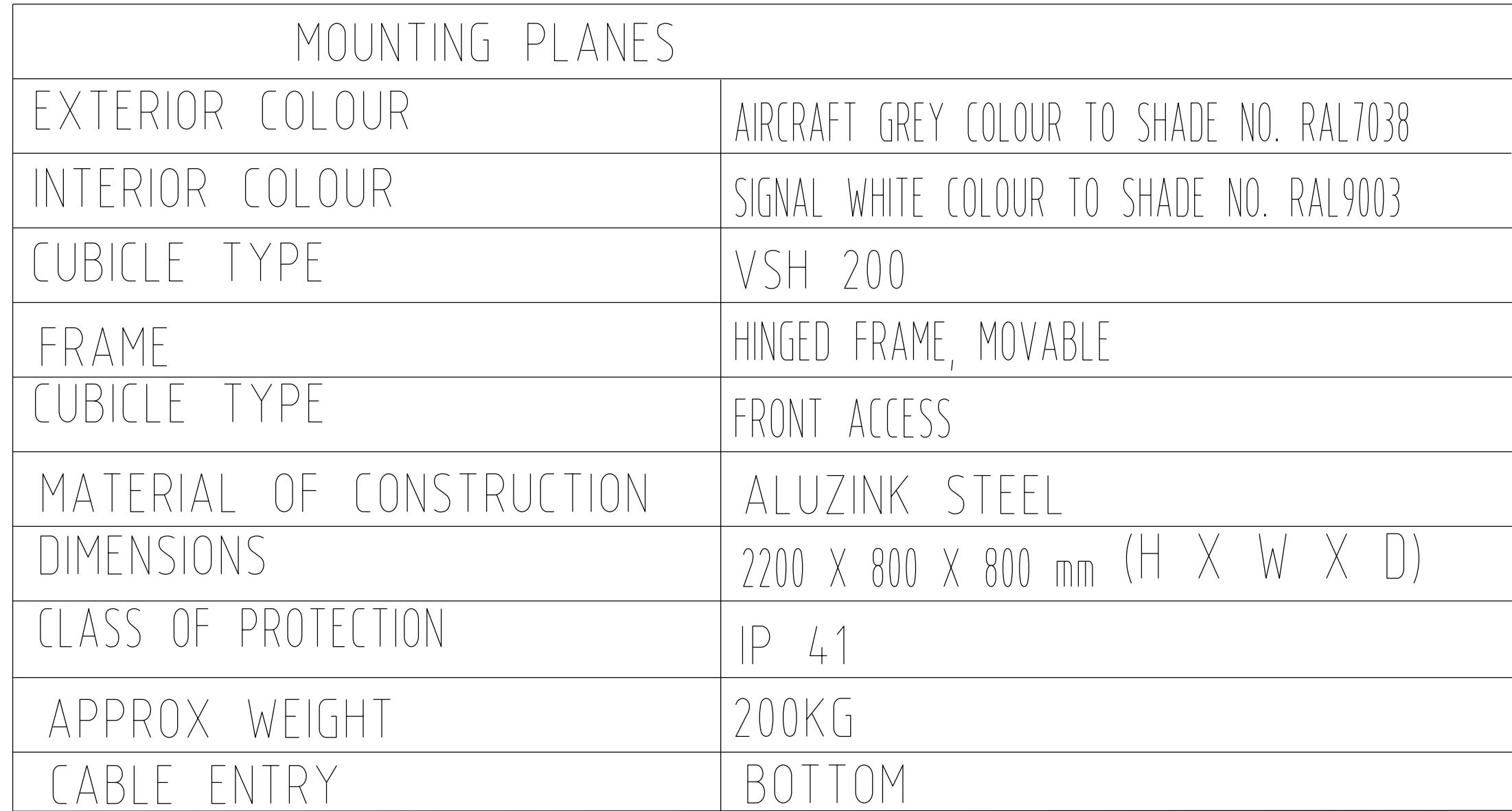

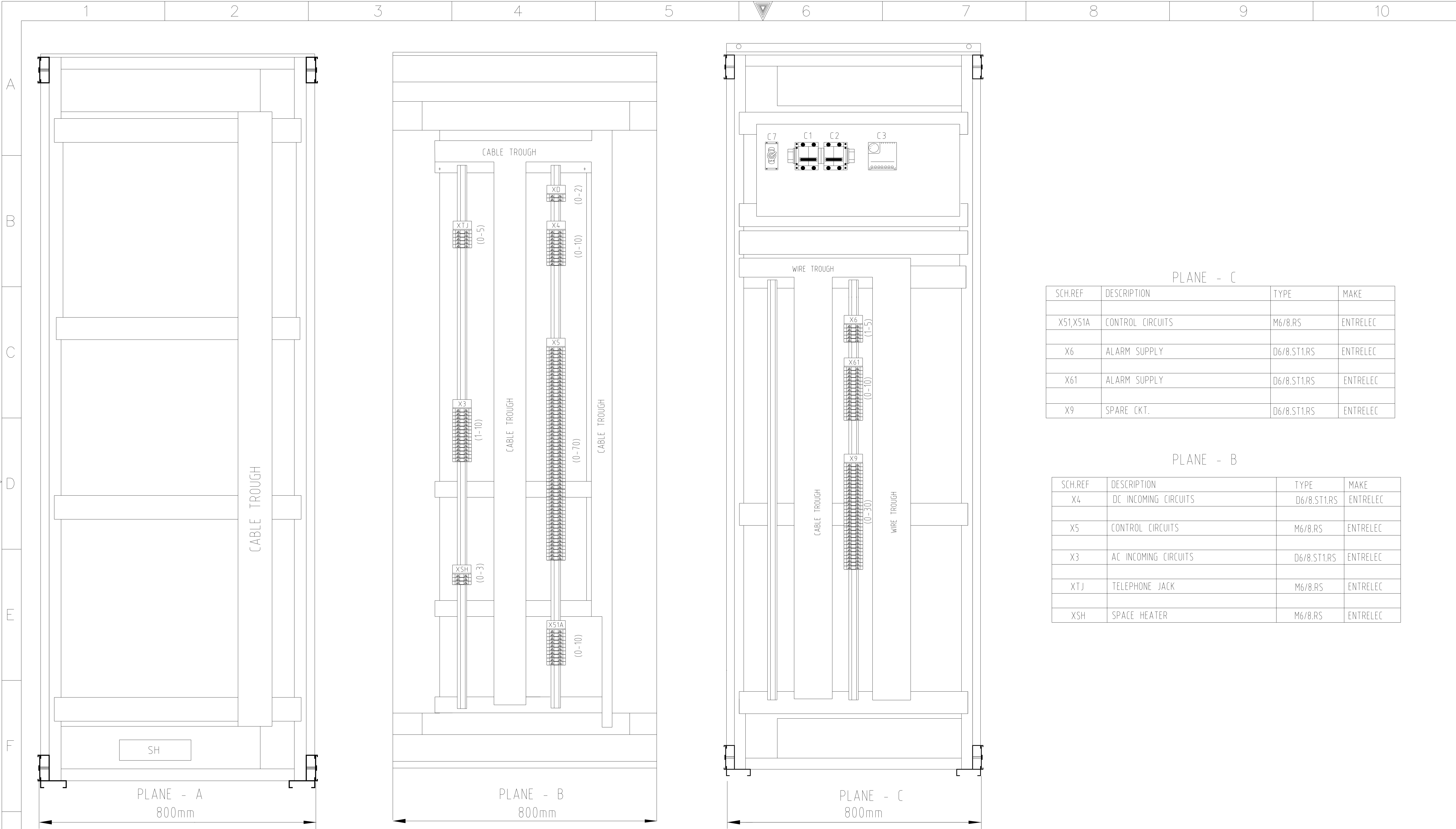


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A	<div>ABB</div> <div>POWER SYSTEMS NETWORK MANAGEMENT PROTECTION AND SUBSTATION AUTOMATION SYSTEMS WBS NO: S-13656</div>					<div>ABB AUTOMATION COMPANY LTD., 414, AL-KHARJ ROAD SECOND INDUSTRIAL CITY RIYADH-11383 K.S.A</div>																																																											
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C	<div>CONTRACTOR : ABB Contracting Company</div> <div>CLIENT : National Grid SA</div>																																																																
D	<div>PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY</div> <div>SUBSTATION : S/S 8709</div>																																																																
E	<div>CONTRACT NO. : 11131113/00</div> <div>TITLE : Assembly Drawing - +UFLS02 [U/F LOAD SHEDDING]</div>																																																																
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THIS DRAWING AND THE INFORMATION CONTAINED HEREIN ARE THE SOLE PROPERTY OF National Grid SA NO REPRODUCTION IN FULL OR IN PART SHALL BE OBTAINED FROM THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF ITS OWNER.



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	00	13 04	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322965		SHT	CONT.	01



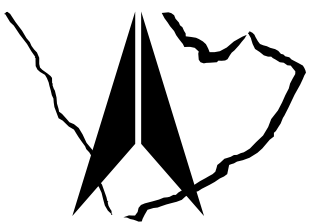
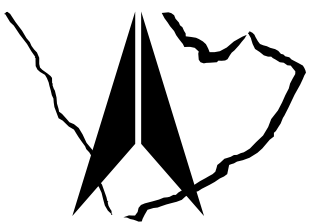
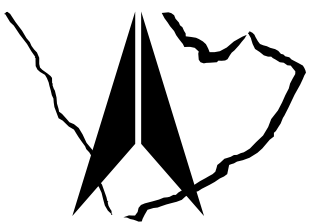
PLANE - C

SCH.REF	DESCRIPTION	TYPE	MAKE
X51,X51A	CONTROL CIRCUITS	M6/8.RS	ENTRELEC
X6	ALARM SUPPLY	D6/8.ST1.RS	ENTRELEC
X61	ALARM SUPPLY	D6/8.ST1.RS	ENTRELEC
X9	SPARE CKT.	D6/8.ST1.RS	ENTRELEC

PLANE - B

SCH.REF	DESCRIPTION	TYPE	MAKE
X4	DC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X5	CONTROL CIRCUITS	M6/8.RS	ENTRELEC
X3	AC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
XTJ	TELEPHONE JACK	M6/8.RS	ENTRELEC
XSH	SPACE HEATER	M6/8.RS	ENTRELEC

G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ASSEMBLY DRAWING		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>	
					DRAWN BY _____ RIZ _____ CHECKED BY _____ KVR		13.8kV U/F LOAD SHEDDING - +UFLS02		INDEX	
	01	13 48	AS MANUFACTURED		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		PLANT NO.	
	00	13 04	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH SAUDI ARABIA		DRAWING NUMBER	
	REV. NO.	DATE	DESCRIPTION						SHEET NO.	
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B				D E S C R I P T I O N			SHEET NO.	QTY.	TYPE	MAKE	ORDERING INFORMATION
				RELAY PANEL +UFLS02 ACCOMMODATING THE FOLLOWING				1	VSH.400	AUT	
	1	U05.5001	94C-1.1	BUS-C STAGE 1 TRIP OUTPUT RELAY WITH FOLLOWING DETAILS			SHT.222	1	MVAJ101	ALSTOM	MVAJ101RA0800A
		U05.5002	94C-1.2	AUX. VOLTAGE : 110/125V DC				1			
				CONTACT DATA : 10 NO, SELF RESET							
				HAND RESET FLAG							
				TRIP UNIT (94C-1)							
	2	U05.5003	94C-2.1	BUS-C STAGE 2 TRIP OUTPUT RELAY WITH FOLLOWING DETAILS			SHT.222	1	MVAJ101	ALSTOM	MVAJ101RA0800A
		U05.5004	94C-2.2	AUX. VOLTAGE : 110/125V DC				1			
C				CONTACT DATA : 10 NO, SELF RESET							
				HAND RESET FLAG							
				TRIP UNIT (94C-2)							
	3	U05.5005	94C-3	BUS-C STAGE 3 TRIP OUTPUT RELAY WITH FOLLOWING DETAILS			SHT.223	1	MVAJ101	ALSTOM	MVAJ101RA0800A
				AUX. VOLTAGE : 110/125V DC							
				CONTACT DATA : 10 NO, SELF RESET							
				HAND RESET FLAG							
				TRIP UNIT (94C-3)							
D	4	U05.5006	94C-4	BUS-C STAGE 4 TRIP OUTPUT RELAY WITH FOLLOWING DETAILS			SHT.223	1	MVAJ101	ALSTOM	MVAJ101RA0800A
				AUX. VOLTAGE : 110/125V DC							
				CONTACT DATA : 10 NO, SELF RESET							
				HAND RESET FLAG							
				TRIP UNIT (94C-4)							
	5	U39.5002	C01	CONVENIENCE OUTLET 10A, 127V AC			SHT.211	2		LEGRAND	7364101015
			C02	CONVENIENCE OUTLET 10A, 220V AC							
E											
F											
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>		
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	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA				

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B	SR. NO.	LOCATION REF.	SCH. REF.	D E S C R I P T I O N		SHEET NO.	QTY.	TYPE	PR 21	ORDERING INFORMATION				
	6			TRIP ISOLATION LINKS FOR FOLLOWING 13.8KV FEEDERS - BUS # C		SHT.228 - 231	26	RS 20	GEC	-				
		U21.1,U21.2	2LKH26C,3LKH26C	CB S2605										
		U21.3,U21.4	2LKH28C,3LKH28C	CB S2805										
		U21.5,U21.6	2LKH30C,3LKH30C	CB S3005										
		U21.7,U21.8	2LKH32C,3LKH32C	CB S3205										
		U21.9,U21.10	2LKH34C,3LKH34C	CB S3405										
		U21.11,U21.12	2LKH36C,3LKH36C	CB S3605										
		U21.13,U25.1	2LKH38C,3LKH38C	CB S3805										
		U25.2,U25.3	2LKH40C,3LKH40C	CB S4005										
		U25.4,U25.5	2LKH42C,3LKH42C	CB S4205										
		U25.6,U25.7	2LKH44C,3LKH44C	CB S4405										
		U25.8,U25.9	2LKH46C,3LKH46C	CB S4605										
		U25.10,U25.11	2LKH48C,3LKH48C	CB S4805										
		U25.12,U25.13	2LKH320C,3LKH320C	CB S320										
C														
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REF.</th><th>D E S C R I P T I O N</th><th>SHEET NO.</th><th>QTY.</th><th>TYPE</th><th>MAKE</th><th>ORDERING INFORMATION</th></tr><tr><td>11</td><td></td><td>C1,C2</td><td>MINIATURE CIRCUIT BREAKER, 2 POLE, 10A FOR CONVENIENCE OUTLET WITH AUXILIARY SWITCH, 1NO + 1NC CONTACTS</td><td>211</td><td>2</td><td>S202-PK10 S2-H11</td><td>ABB</td><td>2CDS 252 001 R0104 S2C-H11L - 2CDS 200936 R0001</td></tr><tr><td></td><td></td><td>C3</td><td>THERMOSTAT FOR SPACE HEATER, 5-60°C</td><td>211</td><td>1</td><td>SK 3110</td><td>RITTAL</td><td></td></tr><tr><td></td><td>U39.5002</td><td>TJ</td><td>TELEPHONE JACK 1GANG 4WIRE</td><td>211</td><td>1</td><td>EDF410</td><td>EDISON</td><td>RS478683</td></tr><tr><td rowspan="4">C</td><td></td><td></td><td>C7</td><td>ON/OFF SWITCH FOR SPACE HEATER</td><td>211</td><td>1</td><td></td><td>ABB</td><td>REF 50-002,2P/SPST</td></tr><tr><td></td><td></td><td>XSH</td><td>SPRING LOADED TERMINAL BLOCK FOR SPACE HEATER</td><td>301</td><td>2</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 685 R1200</td></tr><tr><td></td><td></td><td>DS</td><td>DOOR LIMIT SWITCH FOR CONTROL OF CUBICLE INTERNAL ILLUMINATION LAMP</td><td>211</td><td>1</td><td>LS30P13B02</td><td>ABB</td><td>1SBV010213R1202</td></tr><tr><td></td><td></td><td>IL</td><td>INTERNAL ILLUMINATION CUBICLE LAMP SUITABLE FOR 127V AC, 60Hz SUPPLY, POWER RATING : 20W, 0.27A</td><td>211</td><td>1</td><td>T-4 (SP-20W)</td><td>SP-20W TYPE: T4 WHITE LAMP FIXTURE</td><td>SUNON LIGHTING</td></tr><tr><td rowspan="4">D</td><td></td><td></td><td>SH</td><td>SPACE HEATER, 150W, 120V, 60Hz</td><td>211</td><td>1</td><td></td><td>RICA</td><td>1FZEK006C001</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="4">E</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="4">F</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="4">G</td><td colspan="2">AS-BUILT BY _____ DATE _____</td><td colspan="2">CONTRACT NO. 11131113/00</td><td colspan="2">JOB ORDER NO. 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TYPE	MAKE	ORDERING INFORMATION	11		C1,C2	MINIATURE CIRCUIT BREAKER, 2 POLE, 10A FOR CONVENIENCE OUTLET WITH AUXILIARY SWITCH, 1NO + 1NC CONTACTS	211	2	S202-PK10 S2-H11	ABB	2CDS 252 001 R0104 S2C-H11L - 2CDS 200936 R0001			C3	THERMOSTAT FOR SPACE HEATER, 5-60°C	211	1	SK 3110	RITTAL			U39.5002	TJ	TELEPHONE JACK 1GANG 4WIRE	211	1	EDF410	EDISON	RS478683	C			C7	ON/OFF SWITCH FOR SPACE HEATER	211	1		ABB	REF 50-002,2P/SPST			XSH	SPRING LOADED TERMINAL BLOCK FOR SPACE HEATER	301	2	M6/8.RS	ENTRELEC	1SNA 115 685 R1200			DS	DOOR LIMIT SWITCH FOR CONTROL OF CUBICLE INTERNAL ILLUMINATION LAMP	211	1	LS30P13B02	ABB	1SBV010213R1202			IL	INTERNAL ILLUMINATION CUBICLE LAMP SUITABLE FOR 127V AC, 60Hz SUPPLY, POWER RATING : 20W, 0.27A	211	1	T-4 (SP-20W)	SP-20W TYPE: T4 WHITE LAMP FIXTURE	SUNON LIGHTING	D			SH	SPACE HEATER, 150W, 120V, 60Hz	211	1		RICA	1FZEK006C001																												E																																									F																																									G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. 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B	SR. NO.	ITEM DESIGNATION	D E S C R I P T I O N			SHEET NO.	QTY.	TYPE	MAKE	ORDERING INFORMATION
	12	X3	SPRING LOADED TERMINAL BLOCKS DISCONNECTIBLE FOR AC CIRCUITS			301	10	D6/8.ST.RS	ENTRELEC	1SNA 115 831 R0400
		X4	SPRING LOADED TERMINAL BLOCKS DISCONNECTIBLE FOR DC CIRCUITS			301	10	D6/8.ST.RS	ENTRELEC	1SNA 115 831 R0400
C		XTJ	SPRING LOADED TERMINAL BLOCK FOR TELEPHONE JACK			301	5	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
	13	X5	SPRING LOADED TERMINAL BLOCKS SOLID TYPE FOR PROT.CIRCUITS			301	70	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
		X51A	SPRING LOADED TERMINAL BLOCKS SOLID TYPE FOR PROT.CIRCUITS			301	10	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
D		X61	SPRING LOADED TERMINAL BLOCK FOR LOCAL ALARM			301	10	M6/8.SNB	ENTRELEC	1SNA 115 685 R1200
		X6	SPRING LOADED TERMINAL BLOCK FOR LOCAL ALARM			301	5	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
		X9	SPRING LOADED TERMINAL BLOCK FOR SPARE			301	30	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
E		XD	TERMINAL BLOCK FOR DOIDE			301	2	M4/6.S	ENTRELEC	1SNA 115 685 R1200
F										
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS			
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	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH		SAUDI ARABIA	



الشركة الوطنية لنقل الكهرباء

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
-	C421	CD-322965	SHT	CONT.	01
			L05	L06	

NG/D2-D (2012/01)

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LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
U05.5001	U05.5001 94A-1.1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U05.5002	U05.5001 94A-1.2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U05.5003	U05.5001 94A-2.1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND		
U05.5004	U05.5001 94A-2.2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND		
U05.5005	U05.5001 94A-3	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND		
U05.5006	U05.5001 94A-4	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND		
U09.5001	U09.5001 S01	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND		
U09.5002	U09.5002 S02	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND		
U09.5003	U09.5003 S03	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND		
U09.5004	U09.5004 L1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND		
U17.101	U17.101 74UF	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U17.113	U17.113 CIX	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS		<div>الشركة الوطنية لنقل الكهرباء</div> <div> نقل الكهرباء National Grid sa</div>									
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00	13 04	FOR APPROVAL													L06		L07	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>			RIYADH SAUDI ARABIA											01	

NG/D2-D (2012/01)

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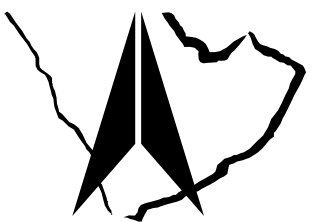
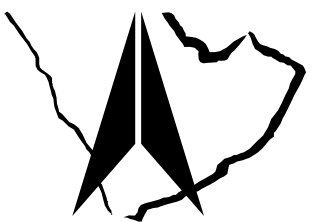
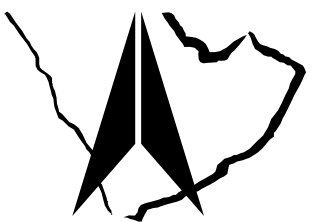
VECTOR

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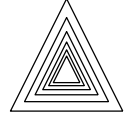
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A			POWER SYSTEMS NETWORK MANAGEMENT PROTECTION AND SUBSTATION AUTOMATION SYSTEMS WBS NO: S-13656					ABB AUTOMATION COMPANY LTD., 414, AL-KHARJ ROAD SECOND INDUSTRIAL CITY RIYADH-11383 K.S.A																																																		
B																																																										
C	CONTRACTOR : ABB Contracting Company																																																									
	CLIENT : National Grid sa																																																									
D	PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY																																																									
	SUBSTATION : S/S 8709																																																									
E	CONTRACT NO. : 11131113/00																																																									
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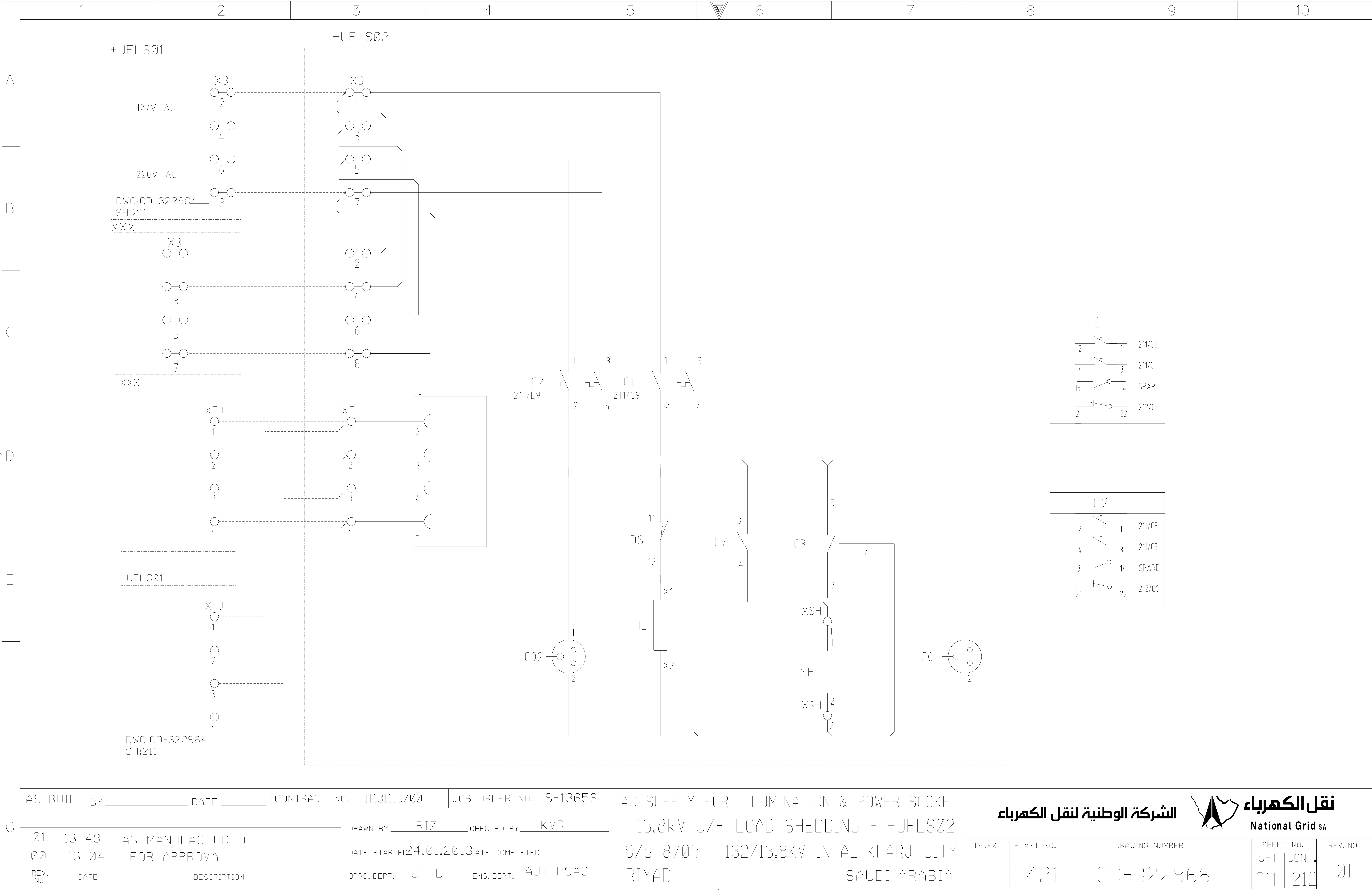
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A		SYMBOL		DESCRIPTION		SYMBOL		DESCRIPTION		SYMBOL		DESCRIPTION		B		SYMBOL		DESCRIPTION		SYMBOL		DESCRIPTION	
				FUSE / LINK				WATTMETER				ELEMENT WITH NEGATED INHIBITING INPUT											
				FUSE WITH THE SUPPLY SIDE INDICATED				VARMETER				ELEMENT WITH INPUT WHICH DOES NOT CARRY ANY LOGIC INFORMATION											
				SINGLE-PHASE TRANSFORMER WITH TWO SEPARATE WINDINGS (TWO ALTERNATIVE FORMS)				POWER FACTOR METER				ELEMENT WITH POSTPONED OUTPUT											
				SINGLE-PHASE TRANSFORMER WITH THREE SEPARATE WINDINGS (TWO ALTERNATIVE FORMS)				POSITION INDICATOR				AND-ELEMENT WITH TWO INPUTS											
				SINGLE-PHASE TRANSFORMER WITH FERRO MAGNETIC CORE				SYNCHROSCOPE				OR-ELEMENT WITH TWO INPUTS											
C				SINGLE-PHASE VOLTAGE TRANSFORMER (MULTI-LINE AND SINGLE-LINE REPRESENTATION)				RECORDING VOLTMETER				LOGIC THRESHOLD ELEMENT WITH FOUR INPUTS AND THRESHOLD VALUE 2											
				SINGLE-PHASE VOLTAGE TRANSFORMER WITH TWO SECONDARY WINDINGS (MULTI-LINE AND SINGLE-LINE REPRESENTATION)				RECORDING WATTMETER				ELEMENT WITH THREE INPUTS FOR "2 AND ONLY 2"											
				CURRENT TRANSFORMER (MULTI-LINE AND SINGLE-LINE REPRESENTATION)				HOUR METER				EXCLUSIVE OR-ELEMENT WITH THREE INPUTS											
				CURRENT TRANSFORMER WITH TWO CORES (MULTI-LINE AND SINGLE-LINE REPRESENTATION)				WATT-HOUR METER				LOGIC IDENTITY ELEMENT WITH THREE INPUTS											
				CURRENT TRANSFORMER WITH TWO SECONDARY WINDINGS ON ONE CORE (MULTI-LINE AND SINGLE-LINE REPRESENTATION)				WATT-HOUR METER FOR ENERGY FROM A BUSBAR SYSTEM				MAJORITY ELEMENT WITH THREE INPUTS											
				FILTER				ELEMENT WITH STATIC INPUT				NEGATOR											
E				HIGH-PASS FILTER				ELEMENT WITH STATIC NEGATED INPUT				NAND ELEMENT WITH TWO INPUTS											
				BAND-PASS FILTER				ELEMENT WITH STATIC NEGATED OUTPUT				NOR ELEMENT WITH TWO INPUTS											
				VOLTMETER				ELEMENT WITH DYNAMIC INPUT				BISTABLE ELEMENT											
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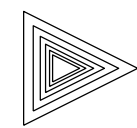
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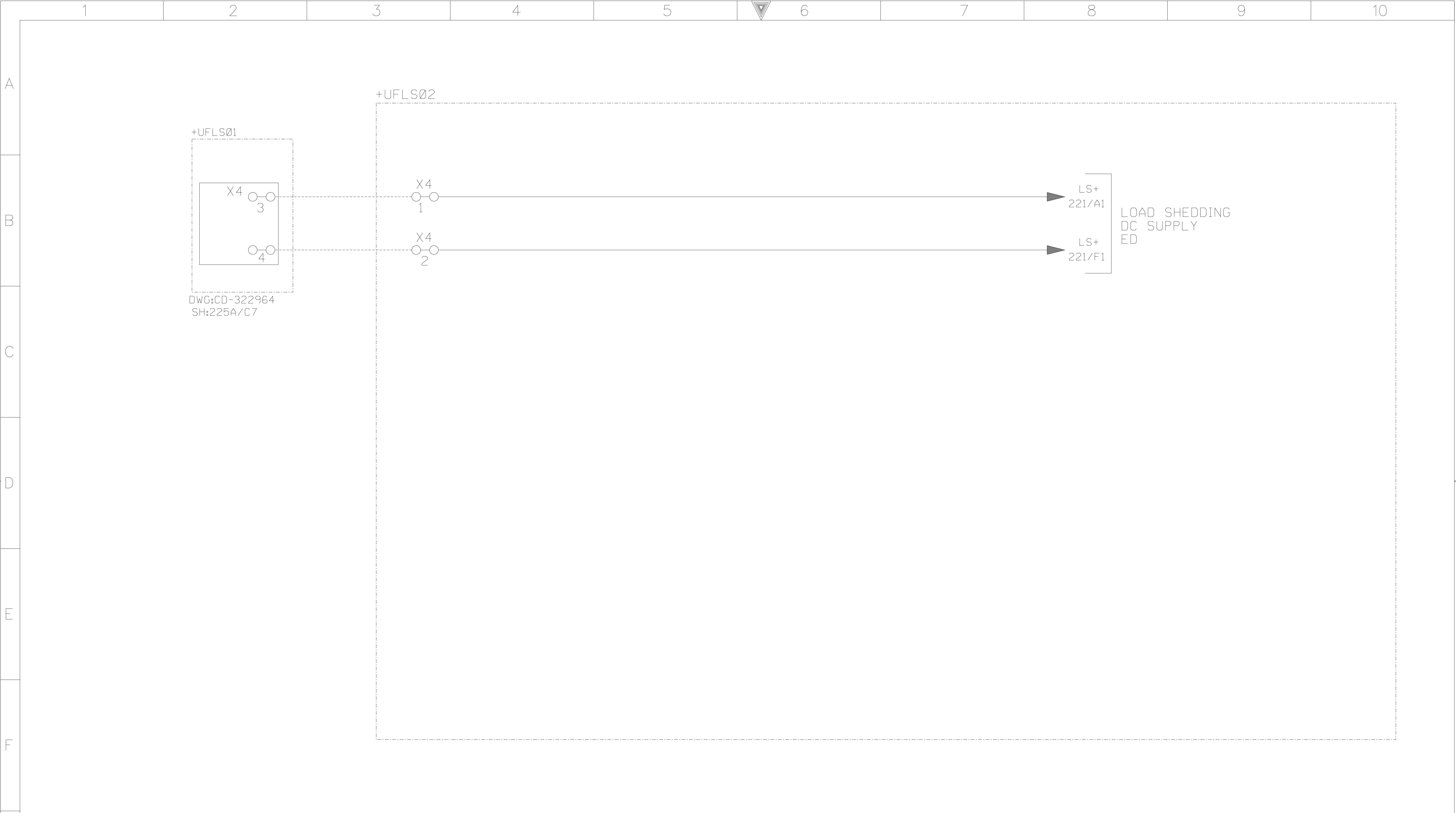


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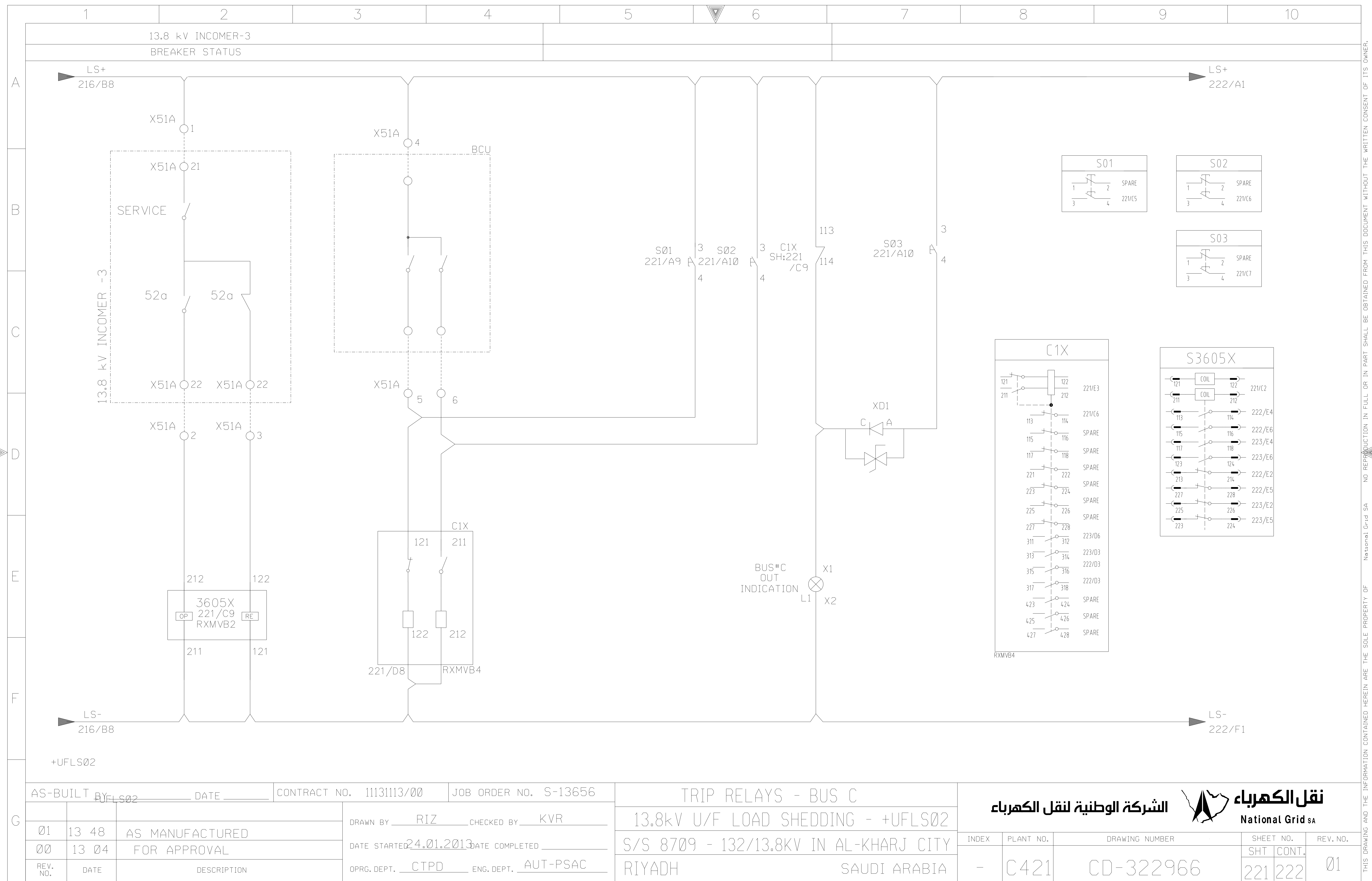
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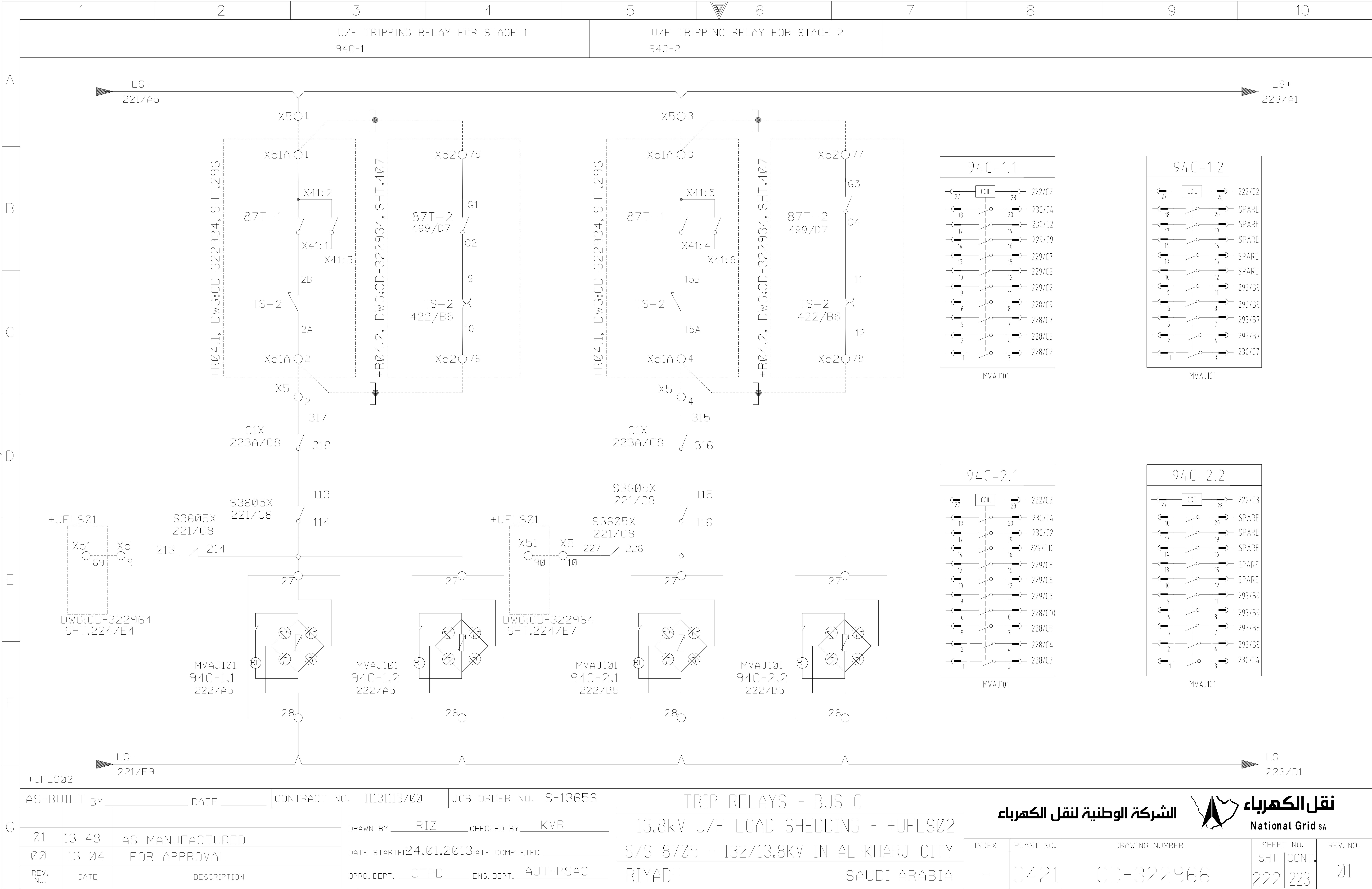
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RIYADH SAUDI ARABIA					

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INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
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13.8kV U/F LOAD SHEDDING - +UFLS02

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

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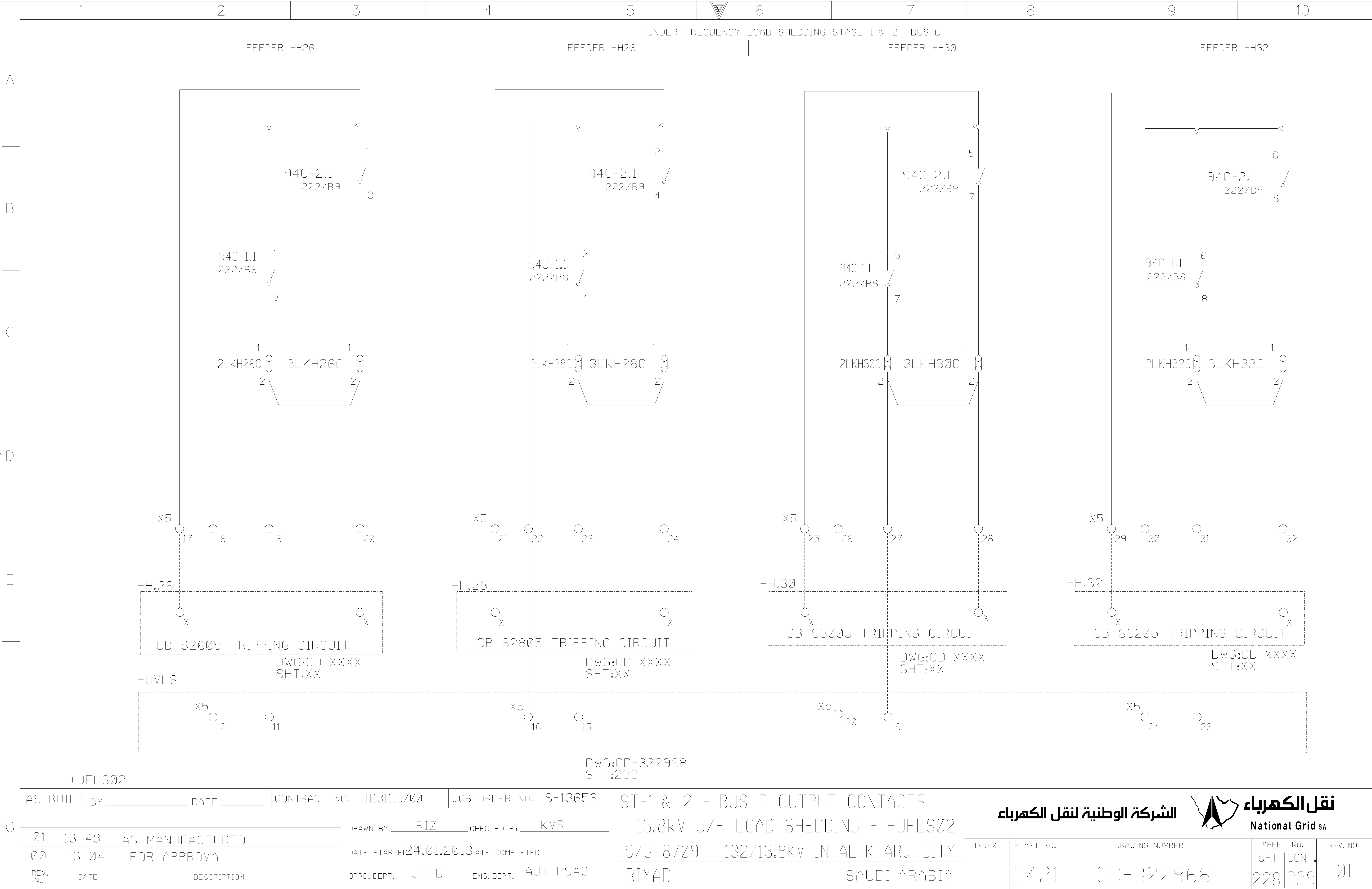
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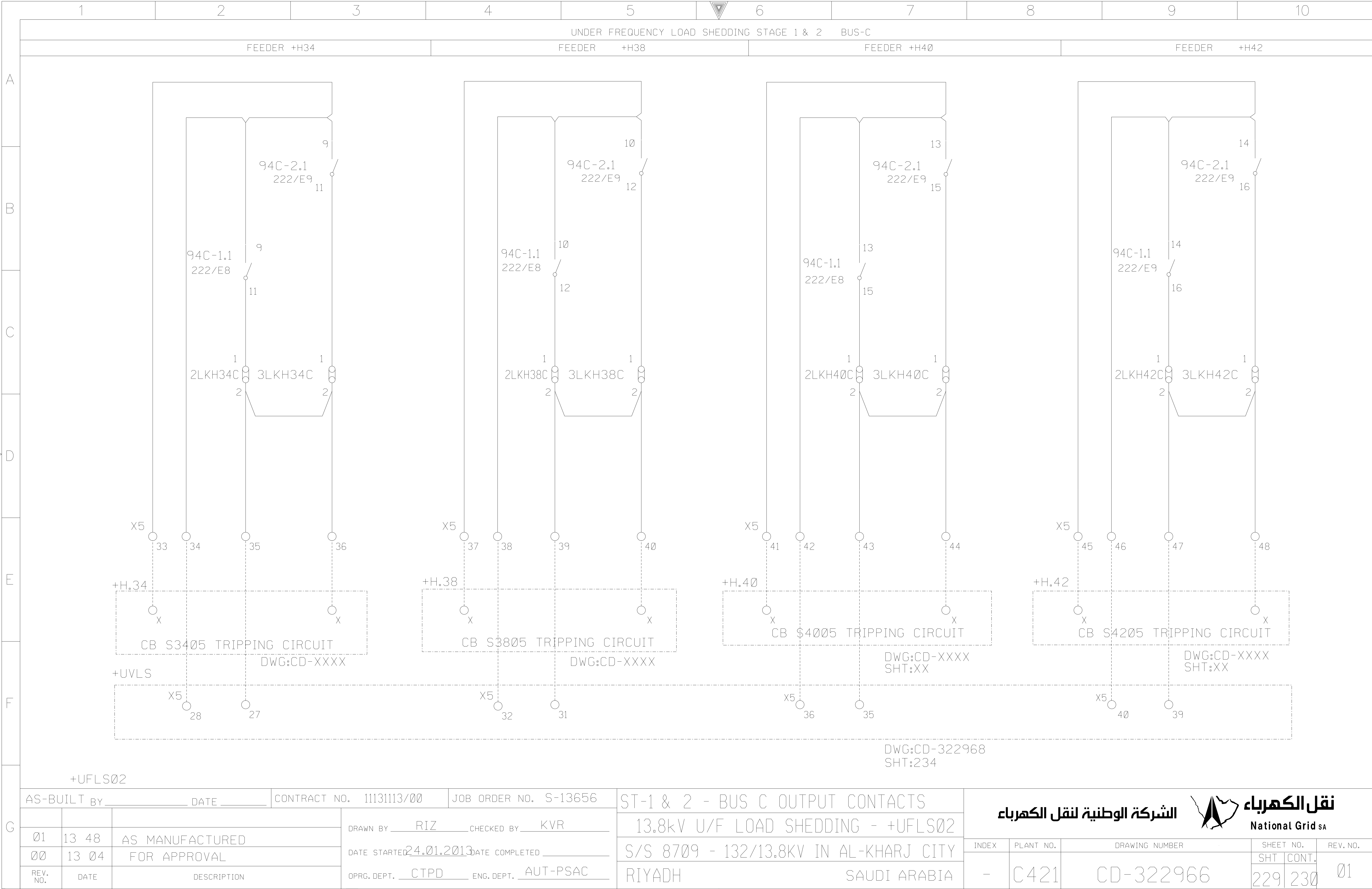
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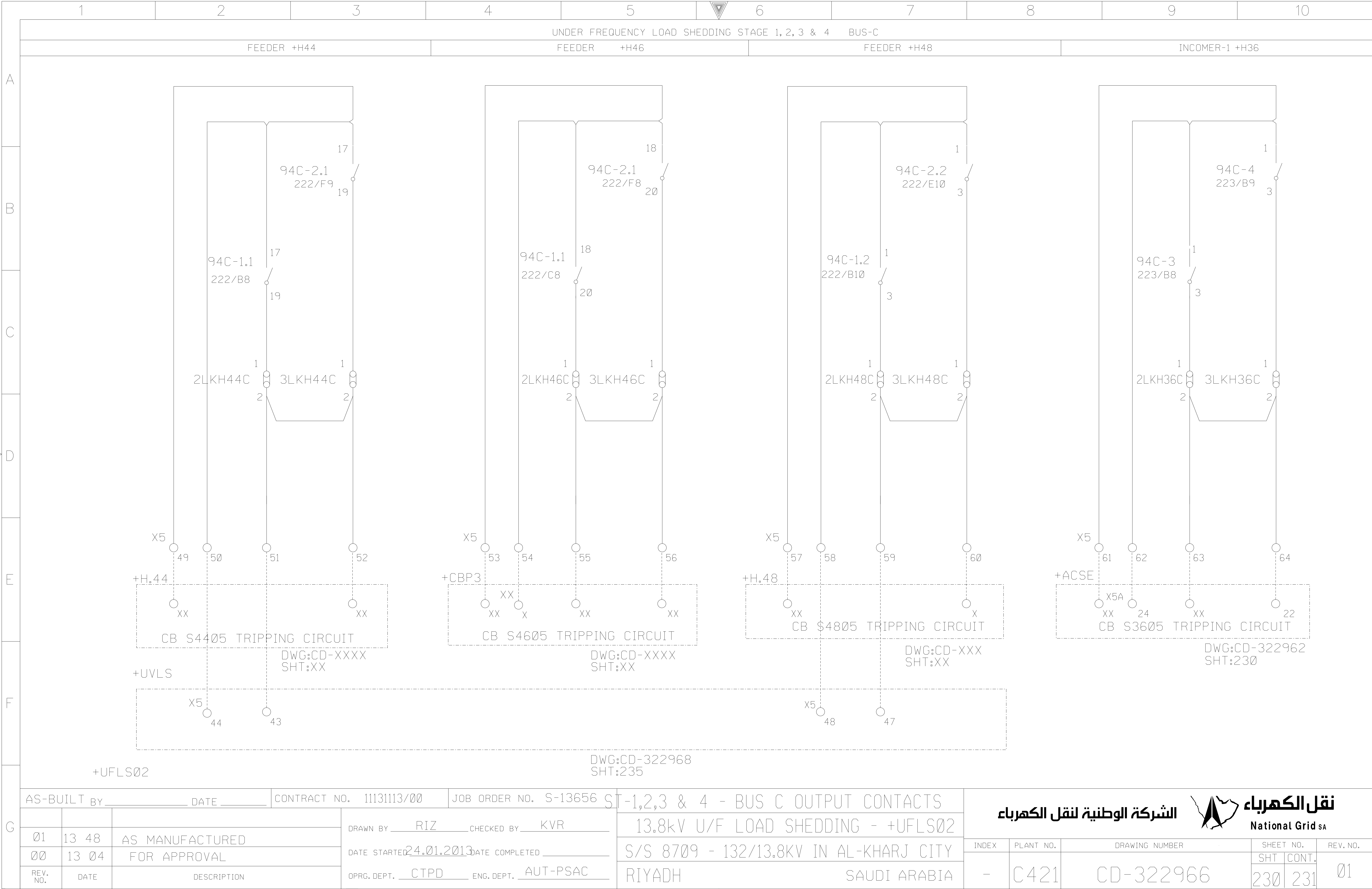
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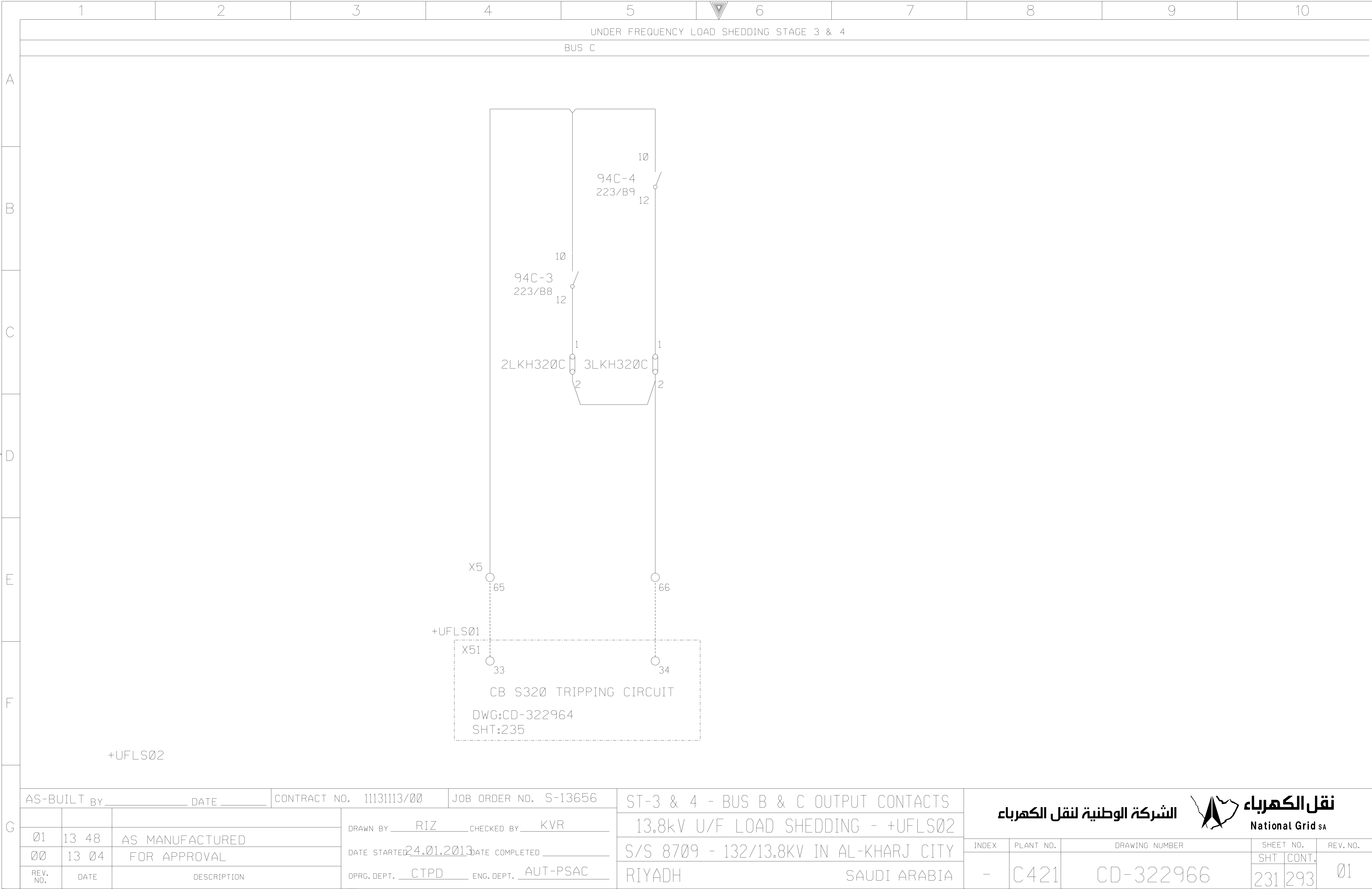
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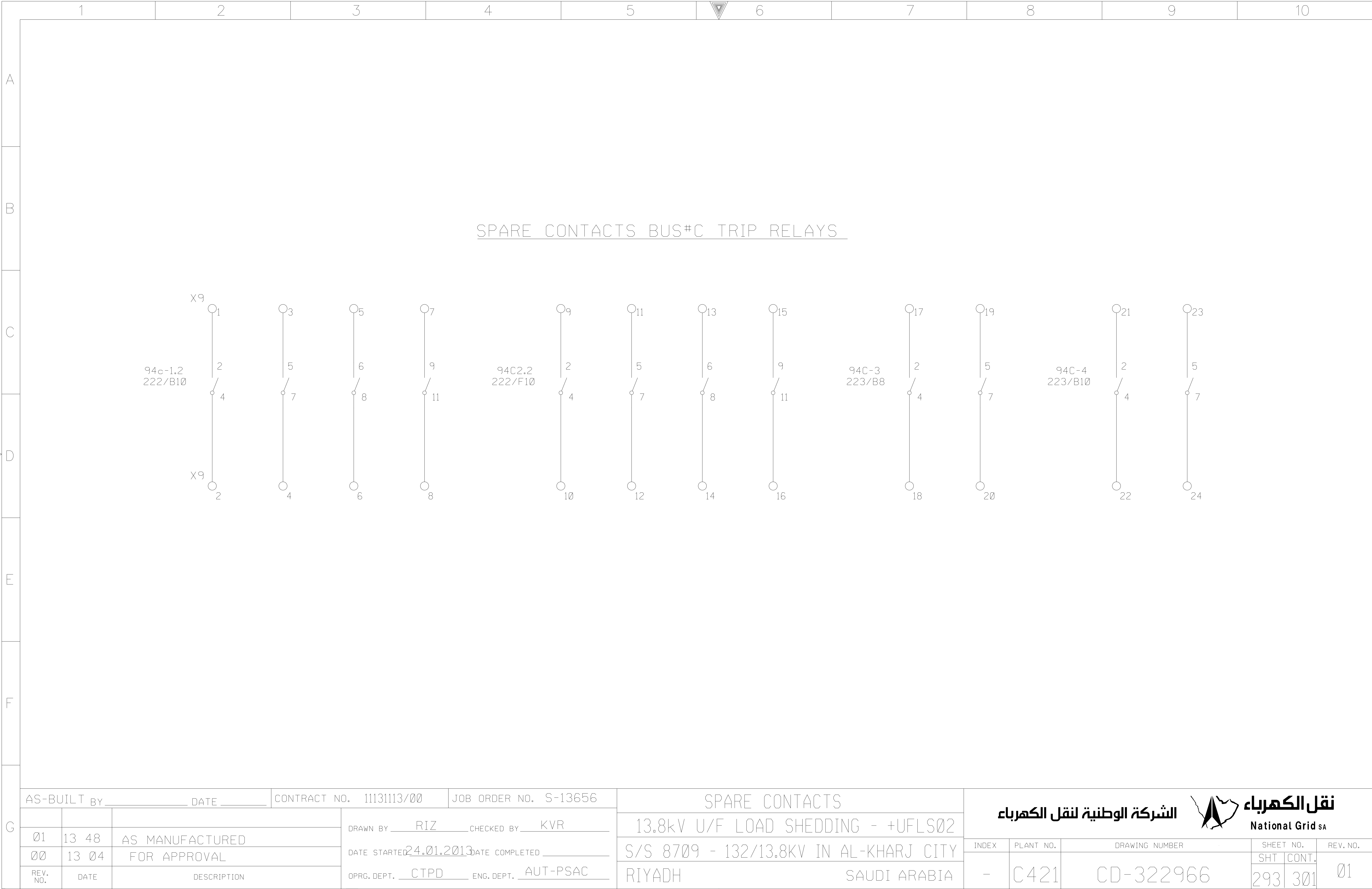
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S-13656		TERMINAL BLOCK ALLOCATION		<div>الشركة الوطنية لنقل الكهرباء</div> <div></div> <div>نقل الكهرباء</div> <div>National Grid sa</div>				<div>01</div> <div>00</div> <div>REV. NO.</div>	<div>13 48</div> <div>13 04</div> <div>DATE</div>	<div>AS MANUFACTURED</div> <div>FOR APPROVAL</div> <div>DESCRIPTION</div>	DRAWN BY _____ RIZ _____CHECKED BY _____ KVR		13.8kV U/F LOAD SHEDDING - +UFLS02		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	DATE STARTED 24.01.2013DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		-	C421	CD-322966		SHT		CONT.	01	OPRG. DEPT. _____CTPD_____ENG. DEPT. _____AUT-PSAC		RIYADH SAUDI ARABIA		301		NIL
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